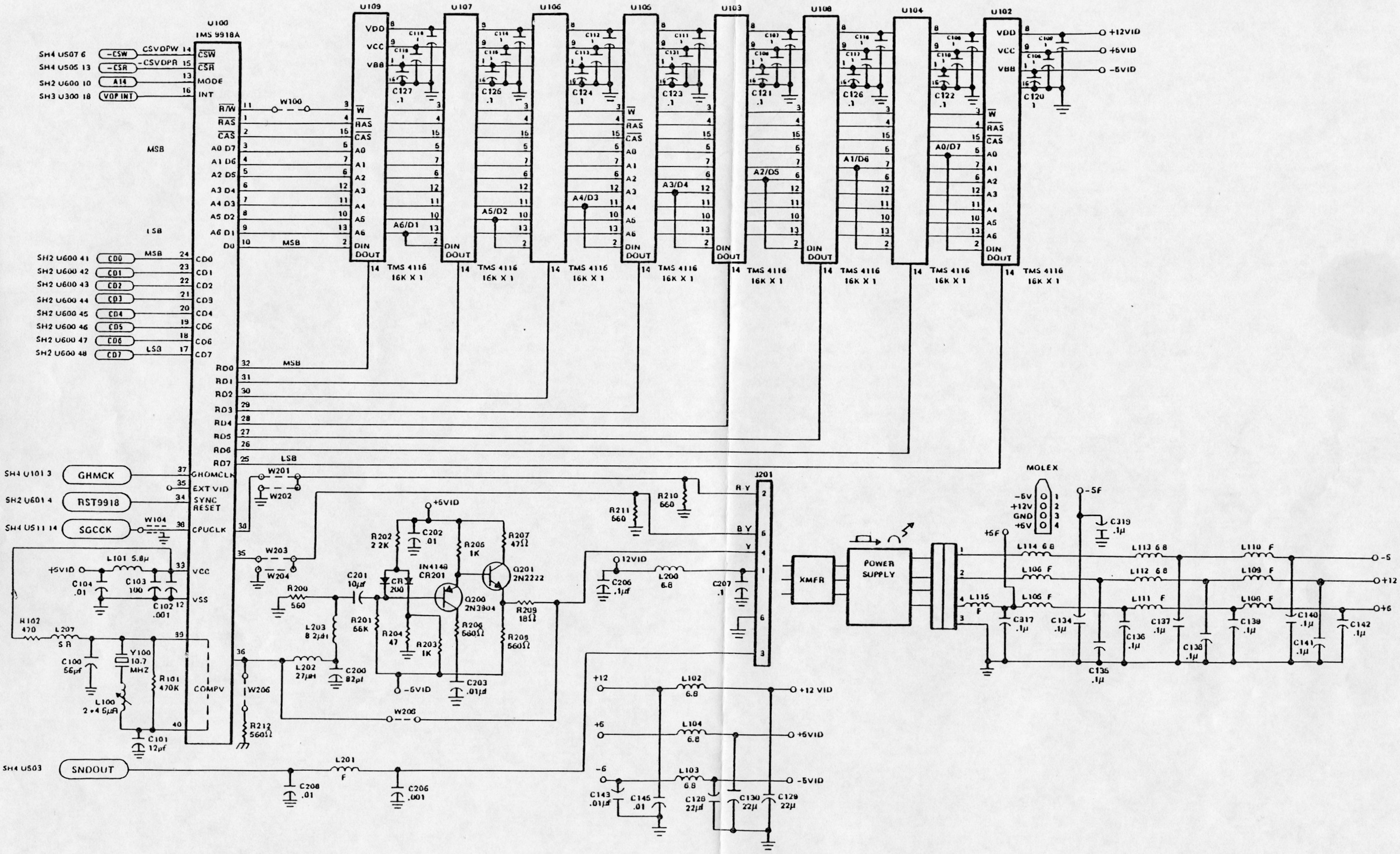
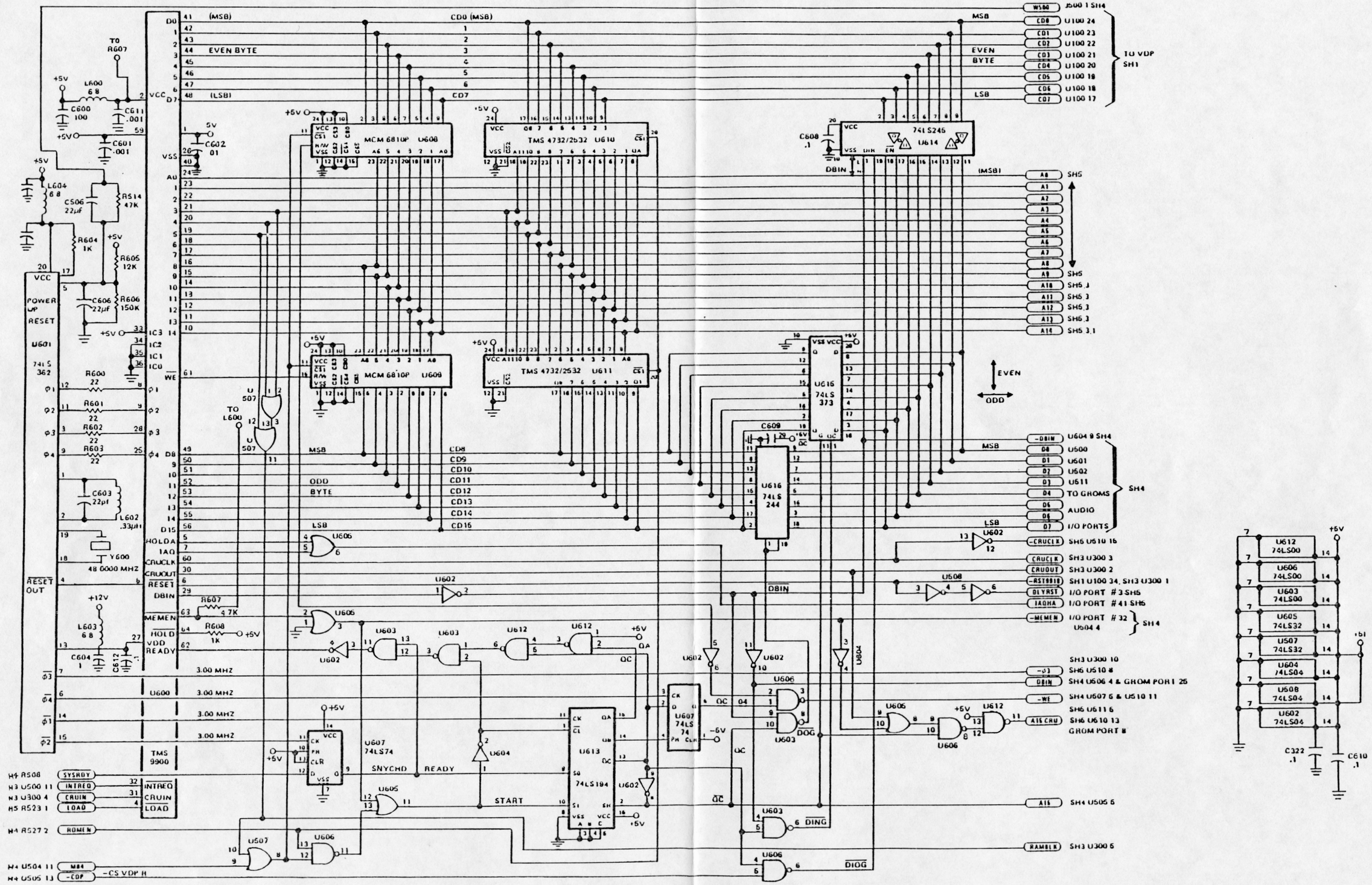
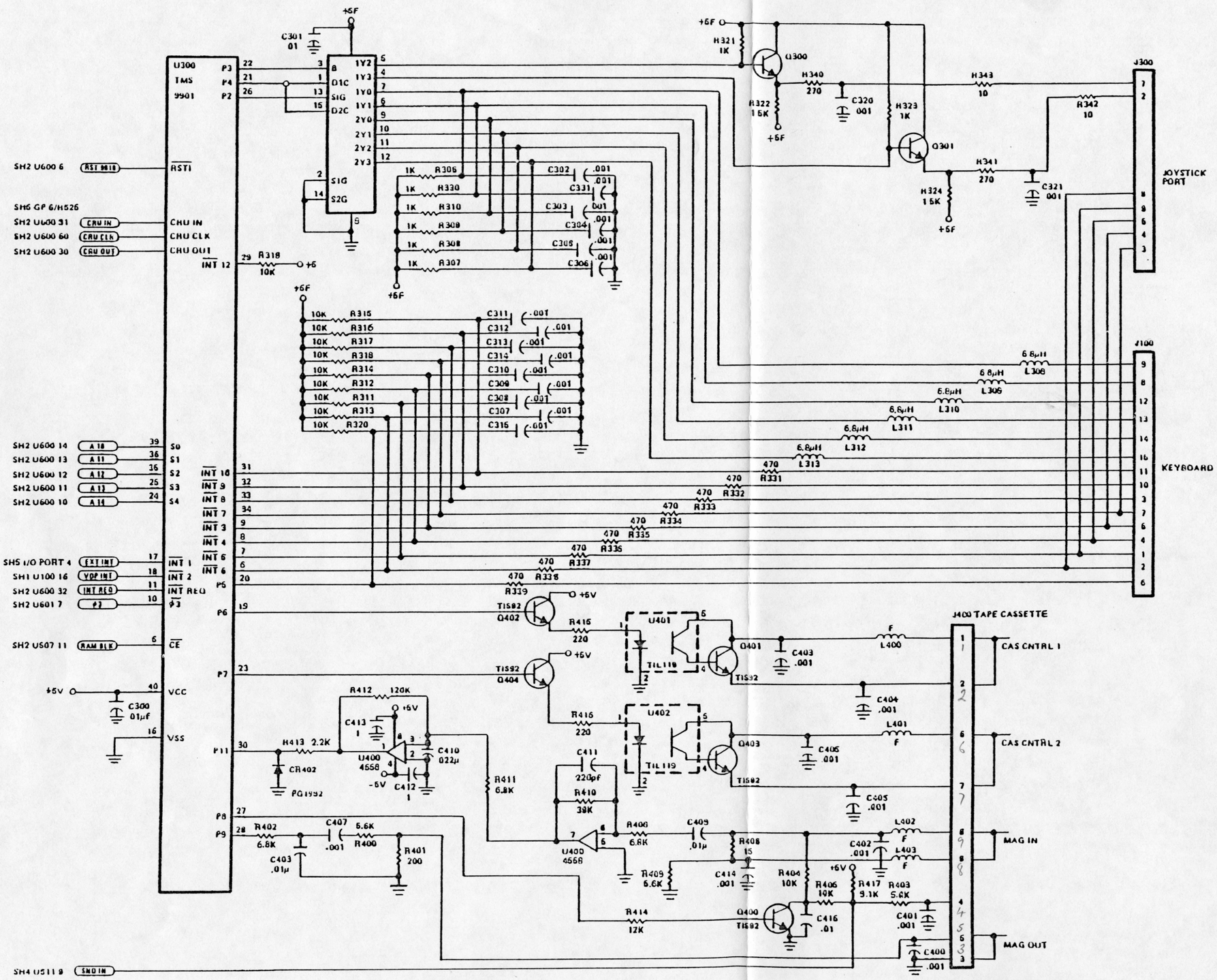
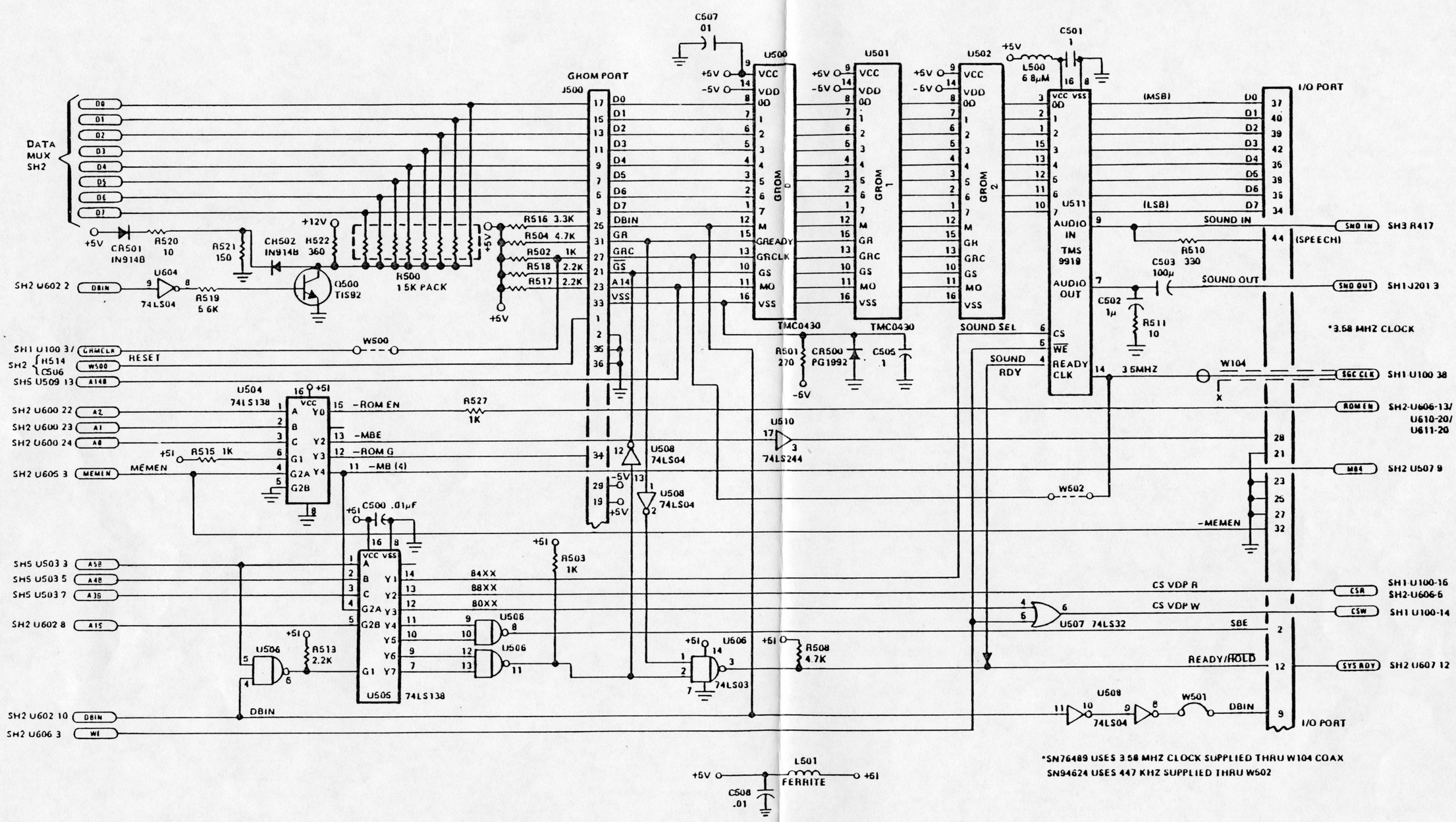
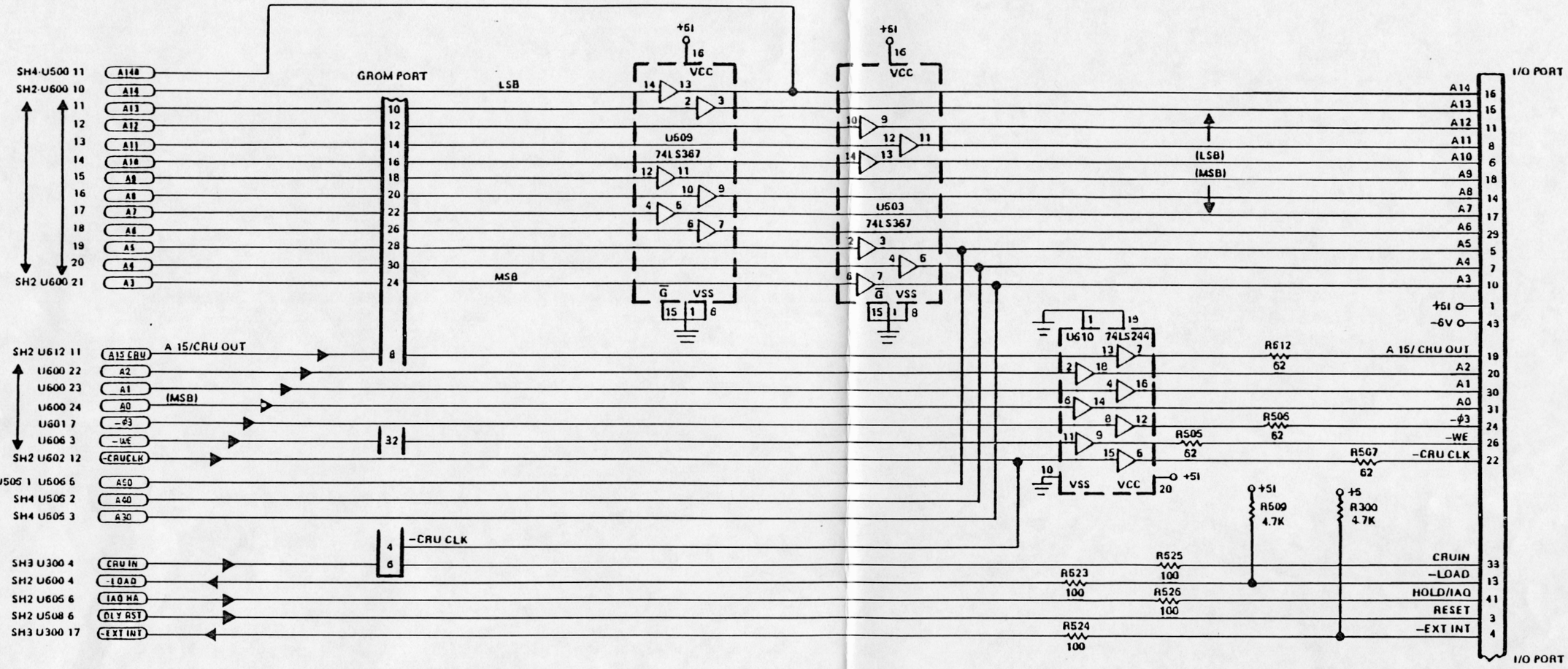
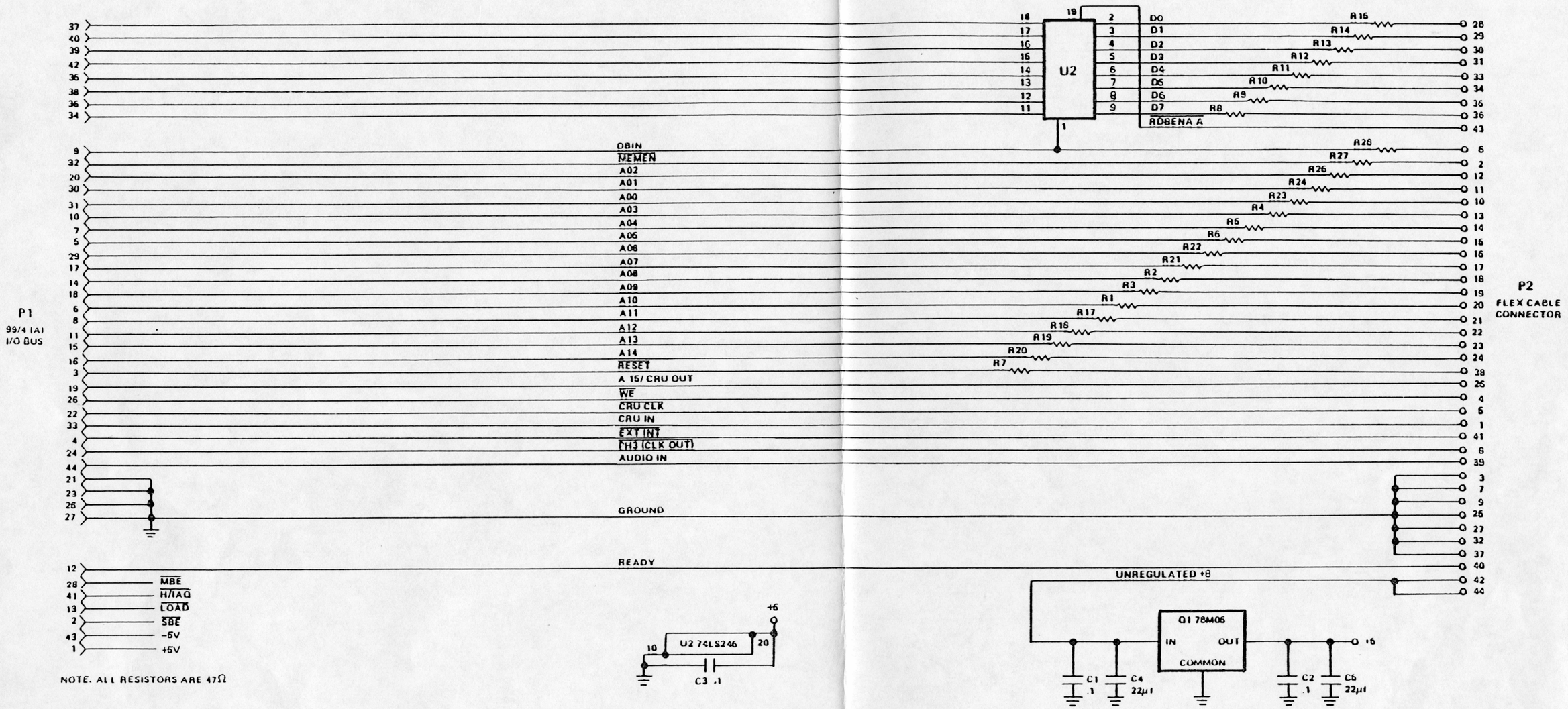

U100
TMS 9918A
U109
U107
U106
U105
U103
U108
U104
U102
SH4 U507 6 -CSW CSVDPW 14
SH4 U505 13 -CSR -CSVDPR 15
SH2 U600 10 A14 13
SH3 U300 18 VDP INT 16
MODE
INT
R/W
RAS
CAS
A0 D7
A1 D6
A2 D5
A3 D4
A4 D3
A5 D2
A6 D1
D0
MSB
LSB
W100
VDD
VCC
VBB
DIN
DOUT
TMS 4116
16K X 1
C116
C117
C118
C119
C127 .1
C126 .1
C124 1
C123 .1
C121 .1
C126 .1
C122 .1
C120 1
A6/D1
A5/D2
A4/D3
A3/D4
A2/D5
A1/D6
A0/D7
+12VID
+6VID
-5VID
SH2 U600 41 CD0
SH2 U600 42 CD1
SH2 U600 43 CD2
SH2 U600 44 CD3
SH2 U600 45 CD4
SH2 U600 46 CD5
SH2 U600 47 CD6
SH2 U600 48 CD7
RD0
RD1
RD2
RD3
RD4
RD5
RD6
RD7
SH4 U101 3 GHMCK GHOMCLK 37
EXT VID 35
SH2 U601 4 RST9918 SYNC RESET 34
SH4 U511 14 SGCCK W104 CPUCLK 38
W201
W202
W203
W204
W205
W206
W207
W208
L101 5.8µ
+5VID
C104 .01
C103 100
C102 .001
VCC
VSS
R102 470
L207 S.A
C100 56µf
Y100 10.7 MHZ
L100 2-45µA
R101 470K
C101 12µf
COMPV
R212 560Ω
SH4 U503 SNDOUT
L201 F
C208 .01
C206 .001
R202 2.2K
C202 .01
R205 1K
R207 47Ω
IN4148 CR201
Q201 2N2222
Q200 2N3904
R200 560
C201 10µf
CR 200
R201 56K
R204 47
R203 1K
R206 680Ω
R209 18Ω
R208 560Ω
L203 8.2µH
L202 27µH
C200 82µf
C203 .01µf
-5VID
R210 660
R211 660
J201
R Y
B Y
Y
12VID
L200 6.8
C206 .1µf
C207 .1
+12
+6
-6
L102 6.8
L104 6.8
L103 6.8
+12 VID
+6VID
-5VID
C143 .01µf
C145 .01
C128 22µf
C130 22µ
C129 22µ
XMFR
POWER SUPPLY
MOLEX
-5V
+12V
GND
+5V
-5F
+5F
C319 .1µ
L114 6.8
L113 6.8
L110 F
L106 F
L112 6.8
L109 F
L115 F
L105 F
L111 F
L108 F
C317 .1µ
C134 .1µ
C136 .1µ
C137 .1µ
C138 .1µ
C139 .1µ
C140 .1µ
C141 .1µ
C142 .1µ
C135 .1µ
-5
+12
+6


(MSB)
EVEN BYTE
(LSB)
CD0 (MSB)
CD7
MCM 6810P U608
TMS 4732/2532 U610
TMS 4732/2532 U611
74LS245 U614
MSB
EVEN BYTE
LSB
TO VDP SH1
(MSB)
SH5
EVEN
ODD
U616 74LS 373
U616 74LS 244
ODD BYTE
CD8
CD9
CD10
CD11
CD12
CD13
CD14
CD15
TO GROMS
AUDIO
I/O PORTS
SH4
U600
3.00 MHZ
TMS 9900
U607 74LS74
U613 74LS194
SNYCHD
READY
START
DBIN
DOG
DING
DIOG
DC
DB
DA
QC
-CRUCLK
CRUCLK
CRUOUT
-AS9919
DLYRST
IAQHA
-MEMEN
-WE
A15 CRU
-CS VDP H
SYSRDY
INTREQ
CRUIN
LOAD
ROMEN
MEM
-CDP
U612 74LS00
U606 74LS00
U603 74LS00
U605 74LS32
U507 74LS32
U604 74LS04
U608 74LS04
U602 74LS04
C322 .1
C610 .1

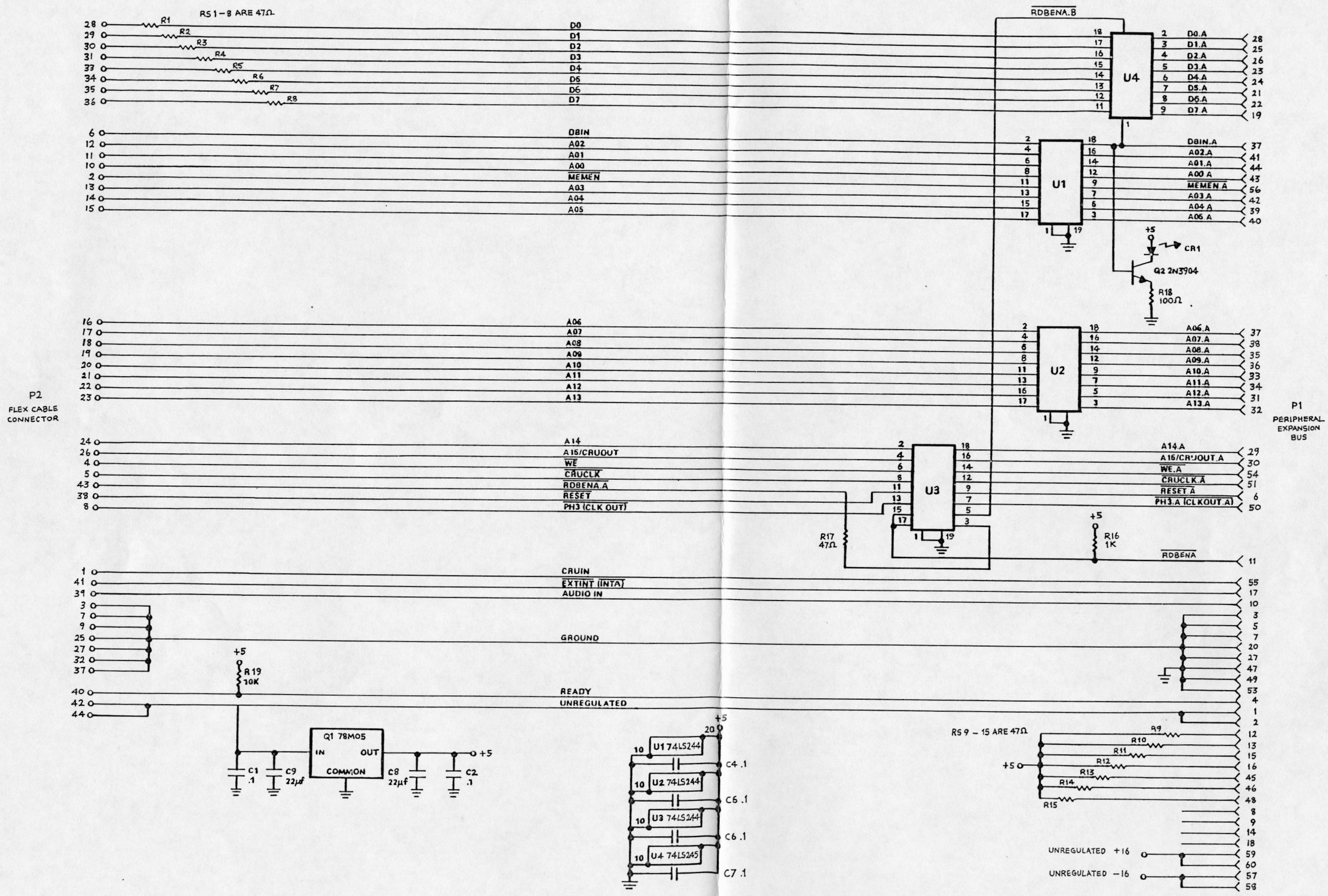

U300
TMS
9901
P3
P4
P2
RSTI
CRU IN
CRU CLK
CRU OUT
INT 12
SH2 U600 6
RST MIB
SH6 GP 6/H526
SH2 U600 31
CRU IN
SH2 U600 60
CRU CLK
SH2 U600 30
CRU OUT
+5F
C301
01
1Y2
1Y3
1Y0
1Y1
2Y0
2Y1
2Y2
2Y3
D1C
D2C
SIG
S2G
R306
R330
R310
R309
R308
R307
1K
C302
C331
C303
C304
C305
C306
.001
R318
10K
+5
SH2 U600 14
A 10
SH2 U600 13
A 11
SH2 U600 12
A 12
SH2 U600 11
A 13
SH2 U600 10
A 14
S0
S1
S2
S3
S4
R315
R316
R317
R318
R314
R312
R311
R313
R320
10K
C311
C312
C313
C314
C310
C309
C308
C307
C315
INT 10
INT 9
INT 8
INT 7
INT 3
INT 4
INT 5
INT 6
R331
R332
R333
R334
R335
R336
R337
R338
470
SH5 I/O PORT 4
EXT INT
SH1 U100 16
VDP INT
SH2 U600 32
INT REQ
SH2 U601 7
P3
INT 1
INT 2
INT REQ
P3
P5
P6
R339
TIS82
Q402
+5V
SH2 U507 11
RAM BLK
CE
+5V
C300
01μf
VCC
VSS
P7
P11
P8
P9
R412
120K
C413
R413
2.2K
CR402
PG1952
U400
4558
C410
022μ
-5V
C412
R411
6.8K
C411
220pf
R410
39K
R402
6.8K
C407
.001
R400
6.6K
C403
.01μ
R401
200
R406
6.6K
C409
.01μ
R408
15
C414
.001
R409
6.6K
R414
12K
R404
10K
R406
10K
R417
9.1K
R403
5.6K
C416
.01
C401
.001
C400
.001
R416
220
U401
TIL119
Q401
TIS92
C403
.001
F
L400
C404
.001
U402
Q403
C405
.001
L401
C405
.001
L402
C402
.001
L403
MAG IN
MAG OUT
J400 TAPE CASSETTE
CAS CNTRL 1
CAS CNTRL 2
SH4 U511 9
SND IN
+6F
R321
1K
Q300
R322
15K
R340
270
C320
.001
R323
1K
Q301
R324
15K
R341
270
C321
.001
R343
10
R342
10
J300
JOYSTICK PORT
J100
KEYBOARD
6.8μH
L308
L309
L310
L311
L312
L313


GROM PORT
J500
I/O PORT
U500
U501
U502
U511
TMS 9918
GROM 0
GROM 1
GROM 2
DATA MUX SH2
D0
D1
D2
D3
D4
D5
D6
D7
DBIN
GR
GRC
GS
A14
VSS
+5V
-5V
+12V
CR501 IN914B
R520 10
R521 150
CR502 IN914B
R522 360
Q500 TIS92
R500 15K PACK
R516 3.3K
R504 4.7K
R502 1K
R518 2.2K
R517 2.2K
U604 74LS04
R519 5.6K
SH2 U602 2
C507 01
C501 1
L500 6.8µM
TMC0430
R501 270
CR500 PG1992
C505 .1
SOUND SEL
SOUND RDY
(MSB)
(LSB)
SOUND IN
SOUND OUT
AUDIO IN
AUDIO OUT
R510 330
C503 100µ
C502 1µ
R511 10
CS
WE
READY
CLK
3.58MHZ
W104
*3.68 MHZ CLOCK
SH3 R417
SH1 J201 3
SH1 U100 38
SH1 U100 37
GRMCLR
RESET
W500
SH2 R514
SH2 C506
SH5 U509 13
A14B
U504 74LS138
-ROM EN
-MBE
-ROM G
-MB (4)
R527 1K
R515 1K
MEMEN
SH2 U600 22
SH2 U600 23
SH2 U600 24
SH2 U605 3
A2
A1
A0
C500 .01µF
U508 74LS04
U510 74LS244
W502
-MEMEN
SH2 U507 9
SH2 U606-13/ U610-20/ U611-20
SH5 U503 3
SH5 U503 5
SH5 U503 7
SH2 U602 8
A5B
A4B
A3B
A1B
84XX
88XX
80XX
R503 1K
U505 74LS138
U506
R513 2.2K
U506 74LS03
R508 4.7K
SH2 U602 10
SH2 U606 3
DBIN
WE
U507 74LS32
CS VDP R
CS VDP W
SBE
READY/HOLD
CSR
CSW
SYS RDY
SH1 U100-16
SH2-U606-6
SH1 U100-14
SH2 U607 12
U508 74LS04
W501
L501 FERRITE
C508 .01
*SN76489 USES 3 58 MHZ CLOCK SUPPLIED THRU W104 COAX
SN94624 USES 447 KHZ SUPPLIED THRU W502

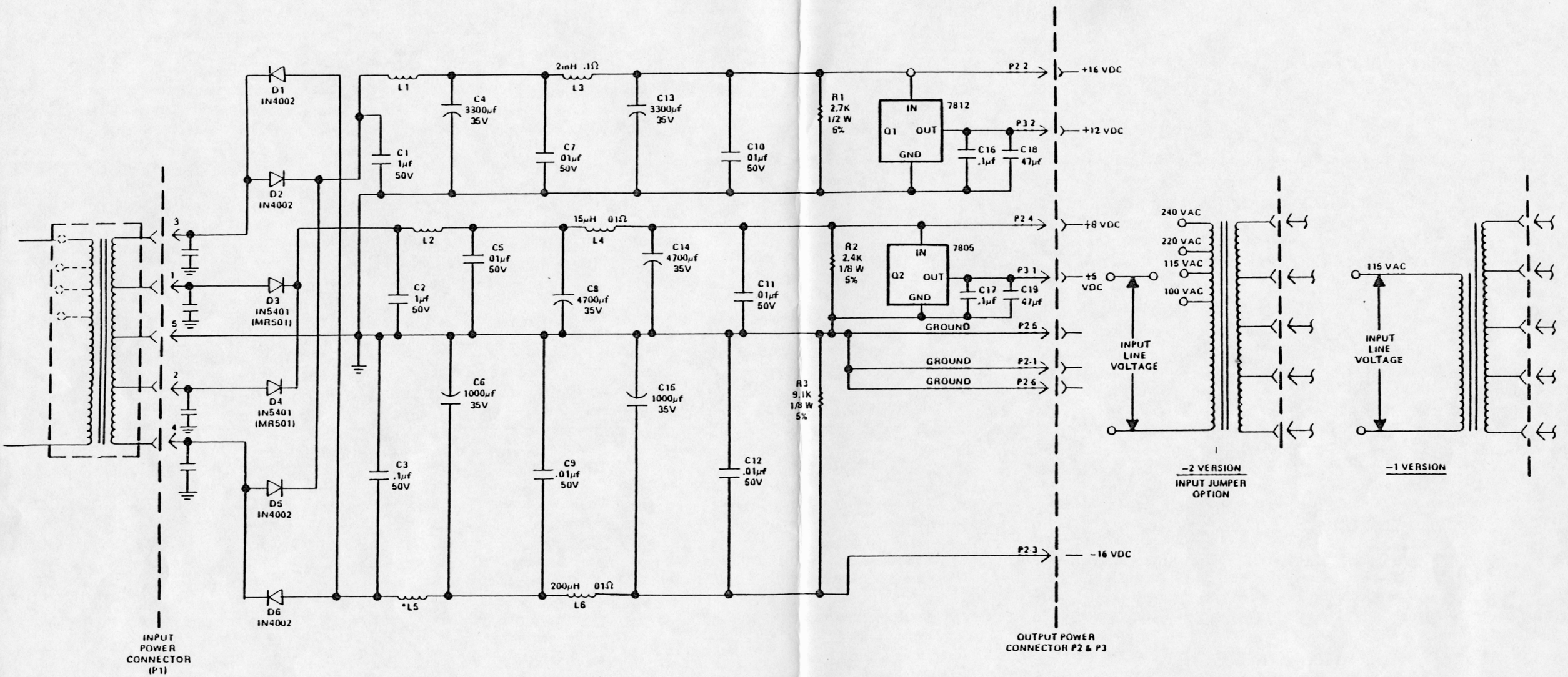

SH4 U500 11
SH2 U600 10
SH2 U600 21
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
GROM PORT
LSB
MSB
+5I
16
VCC
U609
74LS367
U603
74LS367
G
VSS
15
1
8
(LSB)
(MSB)
I/O PORT
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
+5I
-6V
SH2 U612 11
A15 CRU
A 15/CRU OUT
U600 22
U600 23
U600 24
U601 7
U606 3
SH2 U602 12
A2
A1
A0
-φ3
-WE
-CRUCLK
(MSB)
32
U610 74LS244
R612
62
R506
62
R505
62
R507
62
A 15/ CRU OUT
-φ3
-WE
-CRU CLK
VSS
VCC
+5I
SH4 U505 1 U606 6
SH4 U505 2
SH4 U505 3
A50
A40
A30
+5I
R509
4.7K
+5
R300
4.7K
-CRU CLK
4
6
SH3 U300 4
SH2 U600 4
SH2 U605 6
SH2 U508 6
SH3 U300 17
CRU IN
-LOAD
IAQ HA
DLY RST
-EXT INT
R525
100
R523
100
R526
100
R524
100
CRUIN
-LOAD
HOLD/IAQ
RESET
-EXT INT
33
13
41
3
4
I/O PORT



FLEX CABLE SCHEMATIC DIAGRAM
(CONSOLE END OF CABLE)



FLEX CABLE SCHEMATIC DIAGRAM
(PERIPHERAL EXPANSION UNIT END OF CABLE)


D1 IN4002
D2 IN4002
D3 IN5401 (MR501)
D4 IN5401 (MR501)
D5 IN4002
D6 IN4002
L1
2mH .1Ω
L3
15μH .01Ω
L4
200μH .01Ω
L6
*L5
C1 1μf 50V
C2 1μf 50V
C3 .1μf 50V
C4 3300μf 35V
C5 .01μf 50V
C6 1000μf 35V
C7 .01μf 50V
C8 4700μf 35V
C9 .01μf 50V
C10 .01μf 50V
C11 .01μf 50V
C12 .01μf 50V
C13 3300μf 35V
C14 4700μf 35V
C15 1000μf 35V
R1 2.7K 1/2 W 5%
R2 2.4K 1/8 W 5%
R3 9.1K 1/8 W 5%
IN
Q1
OUT
GND
7812
C16 .1μf
C18 47μf
Q2
7805
C17 .1μf
C19 47μf
P2 2
+16 VDC
P3 2
+12 VDC
P2 4
+8 VDC
P3 1
+5 VDC
GROUND
P2 5
GROUND
P2-1
GROUND
P2 6
P2 3
-16 VDC
240 VAC
220 VAC
115 VAC
100 VAC
INPUT LINE VOLTAGE
-2 VERSION
INPUT JUMPER OPTION
115 VAC
INPUT LINE VOLTAGE
-1 VERSION
INPUT POWER CONNECTOR (P1)
OUTPUT POWER CONNECTOR P2 & P3

P1 P2

PCBEN 12 12
MEMEN.A* 56 56
WE.A* 54 54
CRUCLK.A 51 51
DBIN.A 52 52
CLKOUT.A* 50 50
AMC.A 48 48
AMB.A 45 45
AMA.A 46 46
A00.A 43 43
A01.A 44 44
A02.A 41 41
A03.A 42 42
A04.A 39 39
A05.A 40 40
A06.A 37 37
A07.A 38 38
A08.A 35 35
A09.A 36 36
A10.A 33 33
A11.A 34 34
A12.A 31 31
A13.A 32 32
A14.A 29 29
A15/OUT.A 30 30
RDBEN.A 11 11

U1 PAL12L6: AMC.B, AME.F, AMA.F, AC0.B, A01.B, A02.B, MEMEN.B, MQ2 → A01.S
REFADR7
MQ2
RASO*
RAS1*
MEMSY.B
INIT*
U5: PH3.B*
U5: CLKOUT.A*, AMC.A, AMB.A, AMA.A → DBIN.B
DBIN.B → U3-1
U4: A00.B, A01.B, A02.B, A03.B
U4: A04.B, A05.B, A06.B, A07.B
U2: A08.B, A09.B, A10.B, A11.B
U2: A12.B, A13.B, A14.B, A15/COUT.B
RDBEN.A
U9: A01.B → A01.S
U8: PH3.D* → MESEL
REFRAS
AP02
MUX
R2 1K
READY.A
U12
U7
U6
AA6
U15: A09.B, AP02, A10.B, A03.B, A11.B, A04.B → AA6, AA5, AA4
U16: A12.B, A05.B, A13.B, A06.B, A14.B, A07.B → AA3, AA2, AA1
U17: A15/COUT.B, A08.B → AA0
U18: REFADR7
R4 270Ω
ADBIN.A
MESEL*
U9, U10, U11, U12D, U36, U7, U8
INIT*
R1 1K
C80 1µF
R3 0.2M
CR17 MV5491
Q4 3904
R46 100Ω
U6, R5 27Ω CAS*
U8 MUX → U15-1
U20 U21 U22 U23 U24 U25 U26 U27
U28 U29 U30 U31 U32 U33 U34 U35
MD0 MD1 MD2 MD3 MD4 MD5 MD6 MD7
U3
DBIN.B → U88-12
P1 P2 → D0 D1 D2 D3 D4 D5 D6 D7

P2

3 DATACUT 150 R30 C32 .001 150 R29 R25 36K U19 321 10K R42 1.8K +5 R37 300 +5 R41 200 VR DOUT SH1/3B

8 CARRIER DETECT 150 R32 C33 .001 150 R31 R26 36K U19 R22 10K CARDET SH1/3B R38 1.8K VR

2 DATAIN R1 330 C42 .001 U18 75189 DI A SH1/4C

+5 C26 .01 U18 R4 330 C45 .001 DTR A SH1/4C

R3 330 C44 .001 U18 DTR1.A SH1/4B

14 DATAIN1 R2 330 C43 .001 U18 DI1 A SH1/4B

16 DATA OUT 1 R34 150 R33 150 C36 .001 R27 36K U19 R23 10K R39 1.8K +5 DOUT 1 SH1/3A VR

12 CARRIER DETECT 1 R36 150 C37 .001 R35 150 C29 .01 C28 .1 R28 36K U19 R24 10K CARDET1 SH1/3A R40 1.8K +5 VR -12 +12

5 R14 150 C30 .001 R13 150 R11 36K U20 R9 10K R7 1.8K +5 FLAG 1 SH1/2B VR

13 R16 150 C31 .001 R15 150 R12 36K U20 R10 10K FLAG 2 SH1/2B R8 1.8K +5 C34 .01 C35 01 -12 +12

20 DTR0 W5 W7 R18 4.7K +5

11

19 DTR1 W6 W8 R19 4.7K +5

18

6 R6 1.8K +12

1

7

+5 C40 47µf C41 47µf

+12 C38 47µf C39 47µf -12

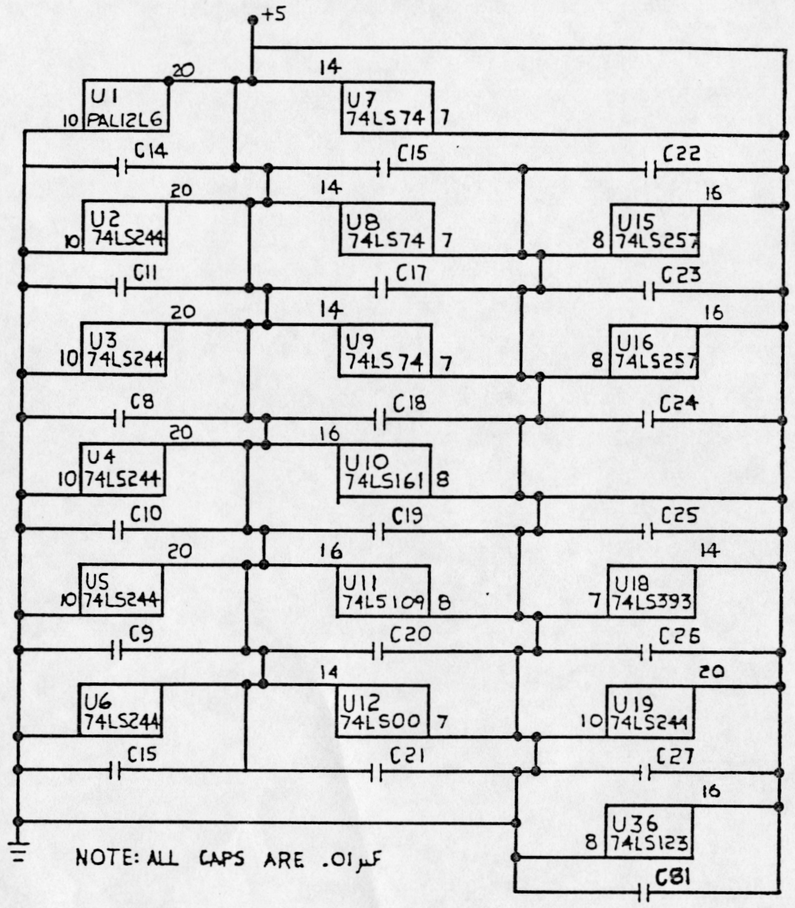
C22 +5 U14

+5 C11 .01 U6

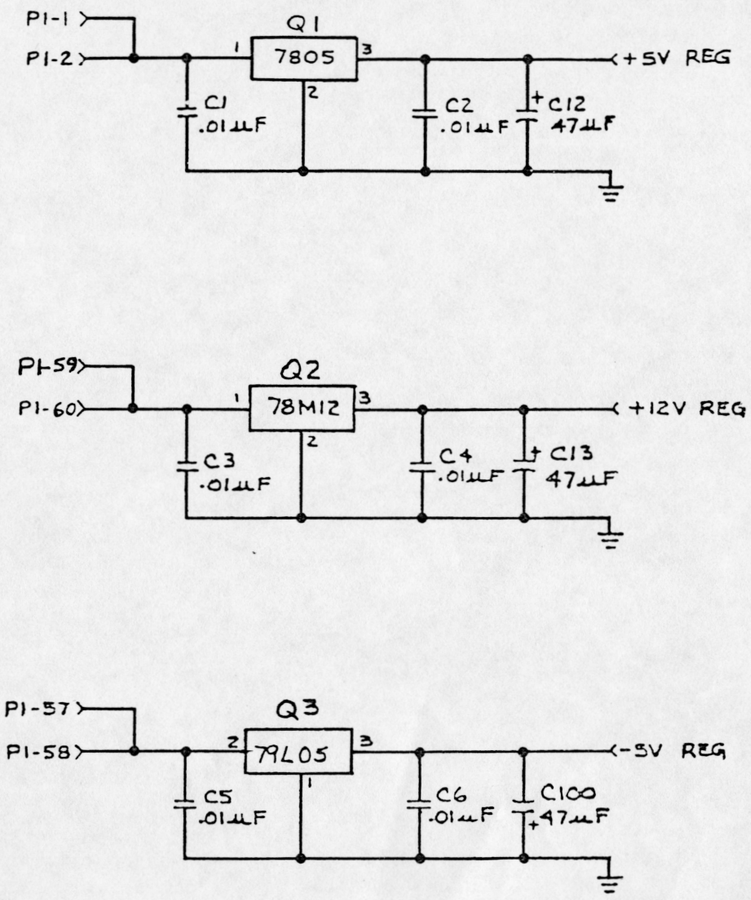
+5 CR17 FLAG 3 SH1/2B Q4 2N3904 R46 100Ω

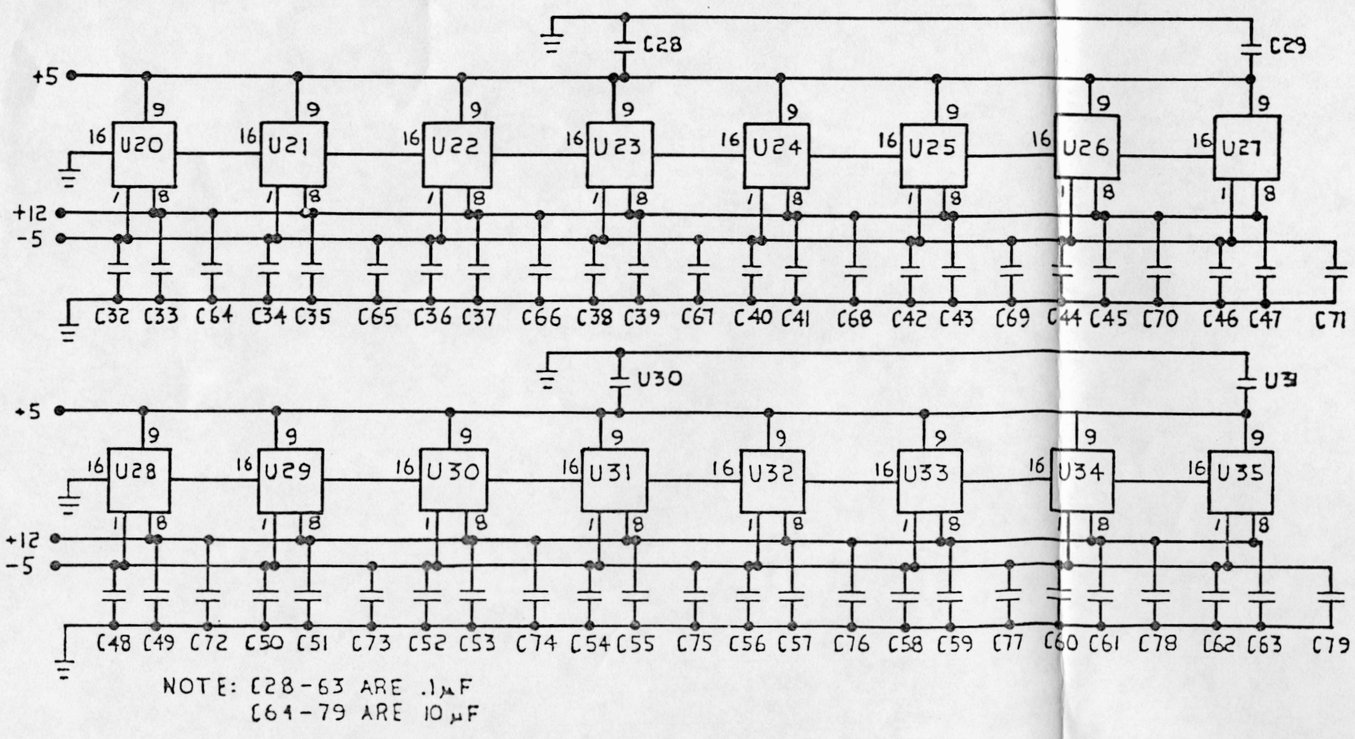
SH1/5B P10 P11 P12 P13 P14 P15 P16 P17 U11 373 PDD RD1 RD2 RD3 RD4 RD5 RD6 RD7 -SH1/6B

PIO SH1/6A U15 OE.N B SH1/6A U15 U15 DBIN.B SH1/5C +5 C17



TTL POWER

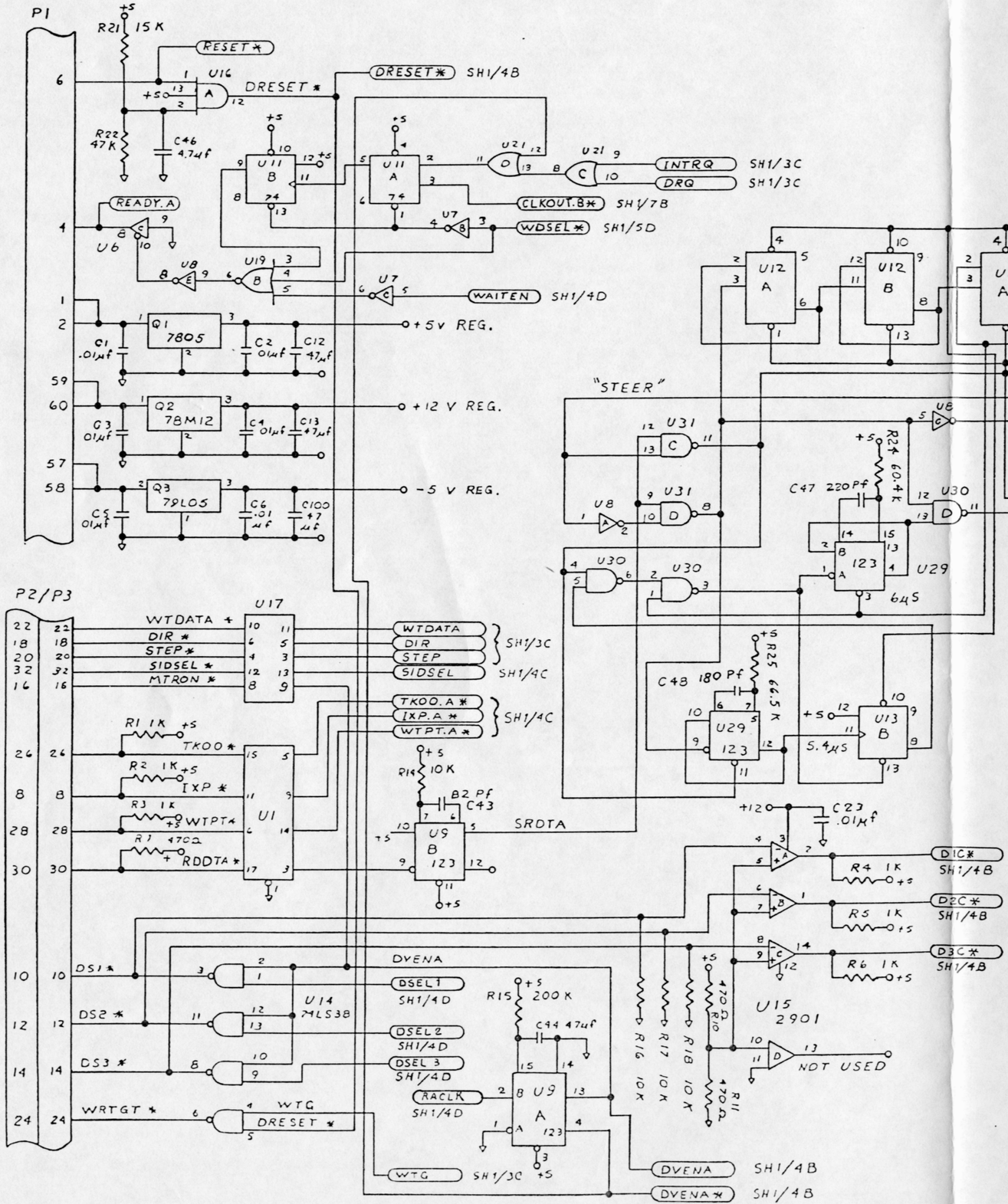


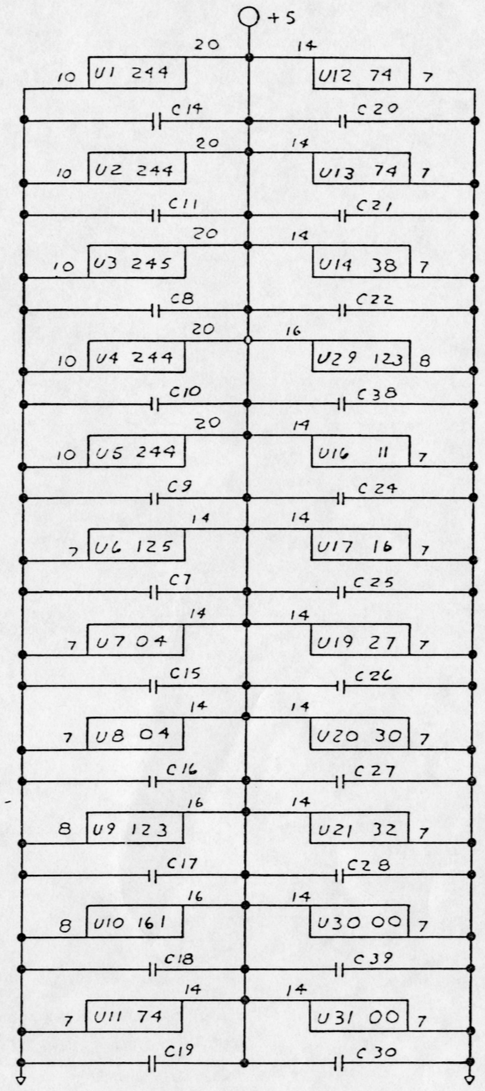


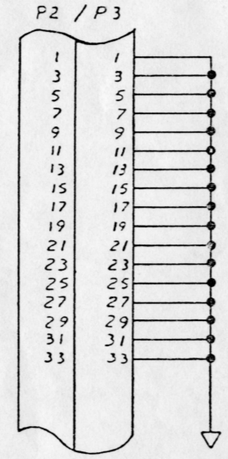
TMS 4116 POWER

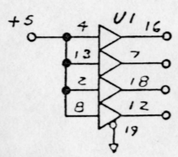
SCHEMATIC — RS-232 PROD. 360

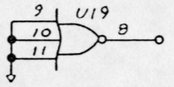
NOTE: ALL OF THE FIGURE BELOW IS 74LS SERIES TTL. ALL CAPS ARE 0.01µf.

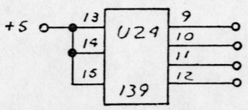


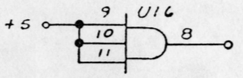


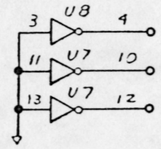












P1

A00.A A01.A A02.A A03.A → U4 244 → A00.B A01.B A02.B A03.B

A04.A A05.A A06.A A07.A → U4 244 → A04.B A05.B A06.B A07.B

A08.A A09.A A10.A A11.A → U2 244 → A08.B A09.B A10.B A11.B

A12.A A13.A A14.A A15/COUT.A → U2 244 → A12.B A13.B A14.B A15/COUT.B

INTB* → W2 → U6 → INTRQ

SENILB* → W1 → U6 → U8 → INTRQ

D0 D1 D2 D3 D4 D5 D6 D7 → U3 245 → DD80 DDB1 DDB2 DDB3 DDB4 DDB5 DDB6 DDB7

RDBENA* → U6 → BDRVR*

PCBEN

MEMEN.A* WE.A* CRUCLK.A* DBIN.A → U5 244 → MEMEN.B* WE.B* CRUCLK.B*

CLKOUT.A* → U5 244 → AMC.A AMB.A AMA.A → U16

CLKOUT.B* SH2/6D

CRUIN

U18 PAL 12L6
- A00.B A01.B A02.B A03.B DSKPGENA A07.B MEMEN.B* PCBEN
- WDSEL* → SH2/6D
- U19 A
- U20 30
- U21 A
- +5 C32 .01

U26 4732 (D1)
- A11 A10 A09 A08 A07.B A06.B A05.B A04.B
- DD80 DDB1 DDB2 DDB3 DDB4 DDB5 DDB6 DDB7
- AD CS1 CS2 +5 C36 .01

U27 4732 (D1)
- A11 A10 A09 A08 A07.B A06.B A05.B A04.B
- A13.B A14.B A15/COUT.B
- AD CS1 CS2 +5 C37 .01

Q4 2N3904 CR17 +5 R46 100Ω

U23 259
- A15/COUT.B CRURGST* DRESET* A12.B A13.B A14.B
- KACLK → SH2/6A
- WAITEN → SH2/6C
- HLT
- DSEL1 DSEL2 DSEL3 → SH2/6A
- SIDSEL → SH2/6B
- C34 .01 +5

U24 139 / U21 A
- WE.B* A12.B WDSEL*
- C35 .01 +5

U28 1771
- DD80 DDB1 DDB2 DDB3 DDB4 DDB5 DDB6 DDB7 A13.B A14.B WDSEL*
- DALT DALO A1 A0 CS HLT RE TROO IP WPRT FDCLK FDDATA CLK WE MR TEST 3PM WF DINT XTDS
- SH2/6B: TKOQA* IXPA* WTPT.A*
- SH2/4C: CLK DTA
- DRESET* → SH2/6D
- DVENA → SH2/6A
- HLD WD WG DIR STEP → HLD, WTDATA SH2/6B, WTG SH2/7A, DIR SH2/6B, STEP SH2/6B
- DRO → R19 10K +5 → DRQ SH2/5D
- INT → R20 10K +5 → INTRQ SH2/5D
- VDD +12 (C40) VCC +5 (C41) VSS -5 (C42) VBB
- OMHCK

INTRQ HLD

U22 251
- SH2/4B: DIC* D2C* D3C*
- SH2/6A: DVENA*
- SIDSEL A12.B A13.B A14.B
- +5 C33 .01

OMHCK

U10
- R26 1K +5
- CLR P LD T CK D C B A
- D C B A R

R12 1.2K U7 .01 C31 R13 1.2K U7

C45 18pf

Y1 8MHZ

U31 A U31 B

R8 470Ω +5

R9 470Ω +5

SCHEMATIC — PROD. 360 DISK CONTROLLER